DEPARTMENT OF MECHANICAL ENGINEERING

MARA INSTITUTE OF TECHNOLOGY

SHAH ALAM

FRACTURE TOUGHNESS OF C-Mn (A516-70) STEEL WELD METAL

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ABSTRACT.

The development of yielding fracture mechanics techniques has opened up the possibility of defining the levels of toughness required to minimise the risk of brittle fracture.

Approach of the fractures toughness of weldments is influenced by the preparation of welded test panels.The approach given particular reference to the fabrication of pressure vessel.

The tensile tests have been conducted on C-Mn (A516 70) weld metals at room temperature at constant displacement rate of 0.1 mm/s and transition load. From the test, yield strength and others mechanical properties for that metal can be obtained.Charpy V tests also have been done to measured the energy absorption at difference position on weldment.

The COD approach to yield fracture mechanics has been used to characterise fracture toughness at the initiation of tearing.The three point bend test using a notched bend configuration (SENB) accordance to BS 5762 :1979 [9] was performed in Dertac servo-hydraulic machine. The result of the test was 0.121 mm of the value of critical crack opening displacement δ_{IC}. From this value defect or crack size can be calculated.

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